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radiculosa the primary cap cell may also add to the neck of the archegonium, but contributes nothing to the axial row. In this species the neck canal cells range from five to six. The embryo, while not different from that of other Anacrogynae, closely resembles *Aneura* in that a large haustorial, suspensor-like cell is produced. In the capsule the sterile cap is pronounced, and in consequence the dehiscence is by means of four longitudinal slits. The authors conclude that the evidence does not warrant the erection of the two families Aneuraceae and Blyttiaceae.—W. J. G. LAND.

Brown oak.—GROOM¹⁷ has investigated the cause of what is known as "brown oak" or "red oak" in Great Britain. The phenomenon consists in the replacement of the ordinary heart wood of *Quercus Robur* by a firm, richer toned, often reddish brown wood, which varies in tint from dull brown to rusty brown. It is found to be due to the influence of a fungus which lives exclusively in the heart wood, which it infects through wounds. "Brown oak" usually occurs at the base of the trunk and in the adjoining root and extends more or less upward in the stem and downward in the root. If the fungus gains entrance to the upper parts of the tree, it produces in these regions masses of "brown oak." The color is due to the fact that the fungus produces a brown substance in the individual cells which is highly resistant to solvents. The source of the food of the fungus was not determined, although there are reasons to believe that tannin is one of the sources. The identity of the fungus is also left in doubt. It produces conidiophores resembling those of *Penicillium*, and on certain specimens basidiocarps appear, which were identified as a species of *Melanogaster*, but cultures did not establish any connection between the two phases.—J. M. C.

Morphology of *Arisaema*.—PICKETT¹⁸ has made a careful study of *Arisaema triphyllum*, and has contributed materially to our knowledge of the morphology of the Araceae. The critical situations may be summarized as follows: There is a wide range in time in the development of the flowers, with a strong tendency to the earlier development of staminate flowers. The tapetal nuclei of the microsporangium are freed and "wander" among the developing microspores, as DUGGAR has described for *Symplocarpus*. The embryo sac is of the *Lilium* type, and a complex and permanent suspensor system is developed. The endosperm arises from one of the daughter cells (micropylar) of the primary endosperm nucleus, the other daughter cell not dividing. The primary roots are diarch, while the secondary roots of seedlings and all roots of mature plants are triarch to pentarch. The statement is made that the sex of mature plants is changeable, dependent upon the amount of available water.

¹⁷ GROOM, PERCY, "Brown oak" and its origin. *Ann. Botany* 29:393-407. 1915.

¹⁸ PICKETT, F. L., A contribution to our knowledge of *Arisaema triphyllum*. *Mem. Torr. Bot. Club* 16:1-55. *pls. 1-5. figs. 70.* 1915.

Occasionally flowers are also found showing a tendency to become bisporangiate.—J. M. C.

Physiology of parasitism.—BROWN¹⁹ has begun a much needed investigation of the physiological relation of host and parasite, his first paper dealing with *Botrytis cinerea*. From the germ tubes of this fungus he succeeded in obtaining a very powerful extract, whose action on cell walls results in the disintegration of tissue, and whose action on the protoplasts produces death. This extract loses its "lethal power" by heating, by mechanical agitation, and by neutralization with an alkali. Neither oxalic acid nor oxalates are accountable for the toxicity of the extract, which the author concludes must be due to the presence of a substance of colloidal nature. The only active substance discovered was an enzyme which was thought to be responsible for the lethal action of the extract. The multiplication of such investigations will result in some progress in knowledge as to the nature of immunity and susceptibility.—J. M. C.

Morphology of *Ephedra helvetica*.—In a thesis presented for the doctorate of science at the University of Geneva, SIGRIANSKI²⁰ has reviewed and reinvestigated *Ephedra helvetica*. Two new facts are reported. The hypodermal archesporial cell does not divide periclinally and give rise to a primary wall cell. By division of the cells of the epidermis the hypodermal initial is placed deeply within the nucellus. The figures which illustrate this situation will not entirely satisfy a critical investigator. A second and most important fact is that the four megasporangia are all functional, the wall of the megasporangium mother cell being the embryo sac wall, as in *Lilium* and some other angiosperms. It would be most interesting to know with certainty whether *Welwitschia* and *Gnetum* have attained the *Lilium* level in this respect.—W. J. G. LAND.

Jurassic wood.—Miss HOLDEN²¹ has described a new species of *Metacestroxyylon* from the Jurassic of Scotland, under the name of *M. scoticum*. It is a good illustration of the merging of araucarian and abietinean characters during the Jurassic, since it is araucarian in the pitting of the tracheids, and abietinean in the pitting of the rays. It differs from *M. araucarioides* only in the absence of pits on the tangential walls of the tracheids and in the biserrate character of the rays.—J. M. C.

¹⁹ BROWN, WILLIAM, Studies in the physiology of parasitism. Ann. Botany 29: 313-348. 1915.

²⁰ SIGRIANSKI, ALEXANDRE, Quelques observations sur l'*Ephedra helvetica* Mey. pp. 62. figs. 74. Geneva. 1913.

²¹ HOLDEN, RUTH, A Jurassic wood from Scotland. New Phytol. 14:205-209. pl. 3. 1915.